Biotreatment Soil Mix
Specification Verification Checklist

This checklist is intended to supply municipal staff, contractors, designers and others with an easy-to-read summary of the detailed information needed to verify that the biotreatment soil mix being provided by the Soil Mix Supplier meets the soil mix specification in Attachment L of the Municipal Regional Permit (MRP) adopted by the Regional Water Board on November 28, 2011.

The checklist should be provided to the Soil Mix Supplier by the municipality or contractor before the soil mix has been ordered to allow for sufficient time to compile the information and time to review the completed checklist before delivery of the soil mix to the job site.

Use of this checklist is not required by the MRP and is intended only for assistance in reviewing submittals. Additionally or alternatively, the one page Supplier Certification Statement, developed by the stormwater programs listed below, can be requested from the Supplier to guarantee that the product meets the specification.

The Certification Statement, a list of Soil Mix Suppliers, Attachment L and other materials are available at the following websites:

- Santa Clara Valley Urban Runoff Pollution Prevention Program:
  www.scvurppp-w2k.com/nd_wp.shtml#other
- San Mateo Countywide Water Pollution Prevention Program:
  www.flowstobay.org/newdevelopment
- Alameda Countywide Clean Water Program:
  www.cleanwaterprogram.org/business/development2.html

If a municipality chooses to use the checklist, the following five items are required to be submitted by the Soil Mix Supplier to the requesting municipality or contractor:

- **Sample of the Biotreatment Soil Mix**
  1-gallon bag of soil mix.

- **Attachment A – Supplier Analysis of the Biotreatment Soil Mix**
  To be completed by the Soil Mix Supplier providing the soil mix.

- **Attachment B – Lab Analysis of Sand Component of the Biotreatment Soil Mix**
  To be completed by the laboratory conducting the analysis of the sand.

- **Attachment C – Lab Analysis of Compost Component of the Biotreatment Soil Mix**
  To be completed by the laboratory conducting the analysis of the compost. Compost analysis of a sample collected (in accordance with the STA sample collection protocol) shall be completed within the last 120 days. Analysis must be completed by a laboratory enrolled in the US Composting Council's Compost Analysis Proficiency program, and shall use the Test Methods for the Evaluation of Composting and Compost (TMECC).

- **Attachment D – Supplier Analysis of Compost Component of the Biotreatment Soil Mix**
  To be completed by the Compost Supplier providing the compost component of the soil mix.

Attachment A

Supplier Analysis of Biotreatment Soil Mix

The table below shall be completed by the Biotreatment Soil Mix Supplier.

Date: **(All lab tests must be done within the last 120 days)**	**Name of Person Filling Out This Form:**
Title:	**Signature:**
Phone:	**Email:**
Company Name:	**City:**
Street Address:	**Zip:**

I certify that the provided Biotreatment Soil Mix meets the requirements of Attachment L of the MRP.	☐ Yes (Pass) ☐ No (Fail)

Describe the equipment and methods used to mix the compost and sand components of the Biotreatment Soil Mix.	

Material	Standard Percent (by volume)	Actual Mix %	Pass	Fail
Sand	60% - 70%		☐	☐
Compost	30% - 40%		☐	☐

Does the soil mix have a permeability of at least 5 inches per hour?[1]	☐ Yes (Pass) ☐ No (Fail)
Will the soil mix support vigorous plant growth?	☐ Yes (Pass) ☐ No (Fail)

[1]Soil mix permeability testing is only required for alternative biotreatment soil mixes. Soil permeability tests must be conducted on a minimum of two samples using constant head permeability in accordance with ASTM D2434 with a 6-inch mold and vacuum saturation.

Attachment B

Lab Analysis of Sand Component of Biotreatment Soil Mix

The table below shall be completed by the laboratory conducting the sand analysis.

Name of Person Filling Out This Form:	**Signature:**
Title:	**Date:**
Phone:	**Email:**
Company:	**City:**
Street Address:	**Zip:**
Qualifications & relevant certifications (ASTM, CTM or approved equivalent certifications):	

Is sand free of wood, waste, coating (such as clay, stone dust, carbonate, etc.), or any other deleterious material?	☐ Yes (Pass) ☐ No (Fail)
Is all aggregate passing the No. 200 sieve non-plastic?	☐ Yes (Pass) ☐ No (Fail)

Particle size analysis shall be conducted in accordance with ASTM D 422 (Standard Test Method for Particle Size Analysis of Soils) or CTM 202. Other equivalent methods acceptable only if approved.

Sieve Size	Standard Percent Passing (% by weight)	Testing Results (%)	Pass	Fail
3/8 inch	100%		☐	☐
No. 4	90% - 100%		☐	☐
No. 8	70% - 100%		☐	☐
No. 16	40% - 95%		☐	☐
No. 30	15% - 70%		☐	☐
No. 40	5% - 55%		☐	☐
No. 100	0% - 15%		☐	☐
No. 200	0% - 5%		☐	☐

Attachment C

Lab Analysis of Compost Component of Biotreatment Soil Mix

The table below shall be completed by the laboratory conducting the compost analysis.

Name of Person Filling Out This Form:	**Signature:**
Title:	**Date:**
Phone:	**Email:**
Company:	**City:**
Street Address:	**Zip:**
Qualifications & relevant certifications: (STA, ASTM or approved equivalent certification)	

Specification	Standard	Testing Results		Pass	Fail
Organic Matter Content	35% - 75% (by dry weight)		%	☐	☐
Carbon-to-Nitrogen Ratio	15:1 to 25:1 (C:N)		C:N	☐	☐
Salinity	< 6.0 mm hos/cm		mm hos/cm	☐	☐
pH	6.5 - 8		pH	☐	☐
Bulk Density	500 – 1100 dry lbs / yd^3		dry lbs / yd^3	☐	☐
Moisture Content	30%-55% (of dry solids)		%	☐	☐
Percent inert ingredients (incl. plastic, glass, paper)	< 1% (by weight or volume)		%	☐	☐

Provide the results of <u>at least one</u> of the following analyses to indicate compost stability:

Specification	Standard	Testing Results		Pass	Fail
Oxygen Test	< 1.3 0_2/unit TS/hr		0_2 /unit TS/hr	☐	☐
Specific Oxygen Test	< 1.5 0_2/unit BVS/hr		0_2/unit BVS/hr	☐	☐
Respiration Test	< 8mg CO_2-C/g VS/day		mgCO_2-C/g VS/day	☐	☐
Dewar test	< 20 °C Temp. rise e.		°C Temp. rise e.	☐	☐
Solvita® Index value	> 5 Index value		Index value	☐	☐

Provide the results of at least one of the following analyses to indicate compost toxicity:

Specification	Standard	Testing Results		Pass	Fail
Ratio of NH_4- : NO_3-N	NH_4- : NO_3-N < 3		NH_4- : NO_3-N	☐	☐
Ammonium	< 500 ppm, dry basis		ppm, dry basis	☐	☐
Seed Germination	> 80% of control		% of control	☐	☐
Plant Trials	> 80% of control		% of control	☐	☐
Solvita® Index value	> 5 Index value		Index value	☐	☐

Provide the analysis of the nutrient content of the compost, including the following:

Specification	Standard	Testing Results		Pass	Fail
B (total, in ppm)	< 80 ppm		ppm	☐	☐
B (soluble, in ppm)	< 2.5 ppm		ppm	☐	☐
Nitrogen (N)(total %)	> 0.9% preferred.		%		
Phosphorus (as P_2O_5)	*[not specified]*		%		
Potassium (as K_2O)	*[not specified]*		%		
Calcium (Ca)	*[not specified]*		%		
Sodium (Na)	*[not specified]*		%		
Magnesium (Mg)	*[not specified]*		%		
Sulfur (S)	*[not specified]*		ppm		

Provide the results of at least one of the following select pathogens:

Specification	Standard	Testing Results		Pass	Fail
Salmonella	< 3 MPN/4 grams TS		MPN/4 grams TS	☐	☐
Coliform Bacteria	< 10,000 MPN/gram		MPN/gram	☐	☐

Does the product meet US EPA, 40CFR 503 regulations regarding trace contaminants metals (Lead, Mercury, etc.)?	☐ Yes (Pass) ☐ No (Fail)

Particle size analysis shall be conducted in accordance with ASTM D 422 (Standard Test Method for Particle Size Analysis of Soils)-washing not required. Equivalent methods acceptable if approved.

Sieve Size	Standard Percent Passing (by weight)	Testing Results (%)	Pass	Fail
1 inch	**99% - 100%**		☐	☐
½ inch	**90% - 100%**		☐	☐
¼ inch	**40% - 90%**		☐	☐
No. 200	**2% - 10%**		☐	☐

Attachment D

Supplier Analysis of Compost Component of Biotreatment Soil Mix

The table below shall be completed by the Compost Supplier providing the compost for the mix.

Name of Company:	**Date of Delivery:**
Qualifications & relevant certifications: (STA, ASTM or approved equivalent certifications)	**Date of the Compost Lab Analysis Report:** (Must be dated within 120 days prior to delivery)
Name of Person Filling Out This Form:	**Date:**
Signature:	**Street Address:**
Email address:	**City:**
Phone:	**Zip:**

Feedstock materials have been specified and include only the following: Landscape/yard trimmings, grass clippings, food scraps, or agricultural crop residues?	☐ Yes (Pass) ☐ No (Fail)
Compost has a dark brown color and a soil-like odor, does not exhibit a sour or putrid smell, does not contain recognizable grass or leaves, and is not hot (120˚F) upon delivery or rewetting?	☐ Yes (Pass) ☐ No (Fail)
The compost has gone through the process to further reduce pathogens (PFRP)? For example, turned windrows must reach a minimum temperature of 55˚C for 15 days with at least 5 turnings during that period.	☐ Yes (Pass) ☐ No (Fail)